Comparisons of Job Characteristics

Focus Occupation: Nuclear Engineers (17-2161)
Associated Occupation: Physicists (19-2012)

Compare Knowledge
Compare Skills
Compare Abilities
Compare Detailed Work Activities
Compare Tools and Technologies

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 84

Focus Occupation: Nuclear Engineers (17-2161)
Associated Occupation: Physicists (19-2012)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Physics	4.3	23.8	20.8	<	Expanded education and/or training may be required
Mathematics	9.2	23.7	19.9	<<	Extensive education and/or training may be required
English Language	11.2	17.9	13.9	<<	Extensive education and/or training may be required
Engineering and Technology	5.7	17.5	24.3	>>	Current knowledge level is likely more than sufficient
Computers and Electronics	8.4	17.1	15.9	0	Current knowledge level may be sufficient
Telecommunications	3.9	7.9	4.6	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 65

Focus Occupation: Nuclear Engineers (17-2161)
Associated Occupation: Physicists (19-2012)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Science	4.5	20.4	14.1	<<	Extensive development of skills in this area may be required
Mathematics	6.2	19.5	11.9	<<	Extensive development of skills in this area may be required
Reading Comprehension	10.7	19.0	15.4	<<	Extensive development of skills in this area may be required
Critical Thinking	10.8	16.7	14.8	<	A higher skill level may be required

Active Learning	8.7	16.4	12.2	<<	Extensive development of skills in this area may be required
Complex Problem Solving	9.1	15.9	12.8	<	A higher skill level may be required
Learning Strategies	7.2	14.5	8.6	<<	Extensive development of skills in this area may be required
Programming	2.2	12.7	2.5	<<	Extensive development of skills in this area may be required
Technology Design	2.6	9.8	6.4	<<	Extensive development of skills in this area may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities

Similarity of Focus Occupation to Associated Occupation: 93

Focus Occupation: Nuclear Engineers (17-2161)
Associated Occupation: Physicists (19-2012)

Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Mathematical Reasoning	6.3	20.7	11.2	<<	Extensive improvement in abilities may be required
Oral Comprehension	12.5	19.9	17.0	<	Some improvement in abilities may be required
Written Comprehension	11.0	19.2	16.2	<	Some improvement in abilities may be required
Oral Expression	12.4	19.0	16.0	<	Some improvement in abilities may be required
Number Facility	6.3	18.6	10.6	<<	Extensive improvement in abilities may be required
Inductive Reasoning	10.2	18.3	13.9	<<	Extensive improvement in abilities may be required
Deductive Reasoning	10.6	17.8	13.8	<<	Extensive improvement in abilities may be required
Originality	7.6	17.8	10.1	<<	Extensive improvement in abilities may be required
Fluency of Ideas	7.6	16.6	10.1	<<	Extensive improvement in abilities may be required
Information Ordering	9.9	16.3	12.0	<<	Extensive improvement in abilities may be required
Category Flexibility	9.0	15.8	12.2	<<	Extensive improvement in abilities may be required
Speed of Closure	5.9	12.4	7.6	<<	Extensive improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 91

Focus Occupation: Nuclear Engineers (17-2161)
Associated Occupation: Physicists (19-2012)

Work Activities	Exclusivity of Activity
Adhere to safety procedures	12
Advise authorities in procedures for radiation incidents or hazards	92
Advise clients or customers	19
Analyze scientific research data or investigative findings	27
Collect scientific or technical data	30
Communicate technical information	4
Conduct nuclear research	89
Conduct standardized qualitative laboratory analyses	62
Conduct standardized quantitative laboratory analyses	62
Confer with engineering, technical or manufacturing personnel	25
Confer with research personnel	50
Confer with scientists	54
Design manufacturing processes or methods	77
Develop mathematical simulation models	70
Develop new products based on scientific research results	71
Develop or maintain databases	30
Develop plans for programs or projects	31
Develop policies, procedures, methods, or standards	21
Develop tables depicting data	33
Direct and coordinate activities of workers or staff	3
Direct and coordinate scientific research or investigative studies	27
Ensure prescribed safe radiation levels are maintained	89
Evaluate manufacturing or processing systems	68
Explain complex mathematical information	30
Follow safe waste disposal procedures	50
Operate high energy linear accelerator	99
Perform statistical analysis in physical science or geological research	71
Plan scientific research or investigative studies	48
Prepare reports	8
Prepare technical reports or related documentation	22
Provide expert testimony on research results	66
Resolve engineering or science problems	46
Use computers to enter, access or retrieve data	3
Use government regulations	44
Use hazardous materials information	35
Use knowledge of investigation techniques	16
Use knowledge of materials testing procedures	70
Use library or online Internet research techniques	21
Use mathematical or statistical methods to identify or analyze problems	30
Use physical science research techniques	68
Use quantitative research methods	35
Use relational database software	26
Use scientific research methodology	21

Use spreadsheet software	18
Use word processing or desktop publishing software	17
Work as a team member	36
Write business project or bid proposals	48

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus Occupation to Associated Occupation: 54

Focus Occupation: Nuclear Engineers (17-2161)
Associated Occupation: Physicists (19-2012)

Tools and Technologies	Exclusivity
Computers	1
Content authoring and editing software	1
Data management and query software	1
Development software	4
Industry specific software	1

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.